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Tile of the Invention: CREAM-LIKE SKIN CLEANSING AGENT

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Inventors: Koji SOMETANI et al.

Applicant: Kobayashi Kose Co., Ltd.

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Specification

1. Tile of the Invention

CREAM-LIKE CLEANSING AGENT

2. Claims

(1) A cream-like skin cleansing agent comprising an ionic surfactant, a silicic anhydrate (component I) and a water-soluble polyalkylene glycol (component II), wherein the content of the component I is from 1 to 15% by weight and a ratio of the content of the component I to that of the component II is from 100:1 to 1:1 (weight ratio).

(2) The cream-like skin cleansing agent according to claim 1, wherein the ionic surfactant is an anionic surfactant or an amphoteric surfactant.

(3) The cream-like skin cleansing agent according to claim 1, wherein the water-soluble polyalkylene glycol is polyoxyethylene polyoxypropylene alkyl ether, polyoxyethylene

polyoxypropylene glycol, polyoxyethylene polyoxypropylene random copolymerization type polymer, polyoxyethylene polyoxypropylene glyceryl ether, polyoxypropylene glyceryl ether, polyoxypropylene glyceryl ether phosphoric acid or polyoxypropylene diamine ether.

3. Detailed Description of the Invention

[Field of Applicability]

The present invention relates to a cream-like skin cleansing agent having excellent stability and, more particularly, to a cream-like skin cleansing agent which changes less in viscosity due to changes in temperature and is excellent in tactile properties.

[Prior Art]

Skin cleansing agents have conventionally been generally classified into solid, cream-like and liquid skin cleansing agents. Among these skin cleansing agents, a cream-like skin cleansing agent is preferably used in view of tactile properties. The cream-like skin cleansing agent has such a feature that it can be easily taken in proper quantity and can be easily dissolved in water, and also it lathers easily and is excellent in appearance.

However, the cream-like skin cleansing agent generally has a problem in that the viscosity changes drastically due to changes in temperature. For example, the cream-like skin cleansing agent generally has a problem in that it is in the

form of a cream at normal temperature, but it becomes hard at low temperature and flows out at high temperature.

To solve these problems, a method of mixing various gelling agents has been made (see Japanese Patent Application, First Publication No. Sho 53-41309). However, satisfactory results have never been obtained.

[Problems to be Solved by the Invention]

When using a water-soluble polymeric thickener as the gelling agent, there arises a problem in that slimy sensation specific to a water-soluble polymer is provided during and after use, and the resulting skin cleansing agent is stringy during use. Also there was a problem that a gelling agent comprising a montmorillonite clay-based inorganic powder can not be used in an acidic range.

A gelling agent, which provides good tactile properties in the cream-like skin cleansing agent regardless of the pH, has never been found, heretofore, and thus it is required to develop the gelling agent.

[Means for Solving the Problems]

Under these circumstances, the present inventors have intensively studied so as to obtain a cream-like skin cleansing agent having excellent stability and found that the above problems can be solved by mixing a silicic anhydride and a water-soluble polyalkylene glycol in a specific amount and a specific ratio. Thus, the present invention has been

completed.

The present invention is directed to a cream-like skin cleansing agent comprising an ionic surfactant, a silicic anhydrate (component I) and a water-soluble polyalkylene glycol (component II), wherein the content of the component I is from 1 to 15% by weight and a ratio of the content of the component I to that of the component II is from 100:1 to 1:1 (weight ratio).

The composition of the present invention will now be described.

As the ionic surfactant in the present invention, for example, one or more kinds of anionic surfactants or amphoteric surfactants can be used alone or in combination.

Examples of the anionic surfactant include fatty acid salt, alkylbenzene sulfonate, alkyl sulfonate, α-olefin sulfonate, dialkyl sulfosuccinate, α-sulfonated fatty acid salt, sodium N-methyl-N-oleoyltaurine, polyoxyethylene alkyl ether sulfate, polyoxyethylene alkyl phenyl ether sulfate, alkyl phosphate, polyoxyethylene alkyl ether phosphate, polyoxyethylene alkyl phenyl ether phosphate, N-acylglutamate, N-acyl-N-alkylamino acid salt and o-alkyl-substituted malate. Anionic surfactants, which are safe for the human body, can be used.

As the amphoteric surfactant, for example, there can be used carboxylic acid type surfactants such as amino acid and

betaine type surfactants; sulfate ester type surfactants; sulfonic acid type surfactants; and phosphate ester type surfactants. Amphoteric surfactants, which are safe for the human body, can be used. Examples thereof include N,N-dimethyl-N-alkyl-N-carboxymethylammonium betaine, N,N-dialkylaminoalkylenecarboxylic acid, N,N,N-trialkyl-N-sulfoalkyleneammonium betaine, N,N-dialkyl-N,N-bis(polyoxyethylenesulfuric acid)ammonium betaine and 2-alkyl-1-hydroxyethyl-1-carboxymethylimidazolinium betaine.

The content of the ionic surfactant is preferably from 5 to 50% by weight. When the content is within the above range, good detergency can be obtained and thus a cream-like skin cleansing agent can be obtained.

The silicic anhydride used in the present invention is preferably high-purity silicic anhydride in the form of ultrafine particle powders and its grade varies depending on the specific surface area and particle size. A hydrophilic silicic anhydride may be used. Also, silicic anhydride in the form of ultrafine particle powders prepared by mixing partially with aluminum oxide similarly may be used.

Examples of the water-soluble polyalkylene glycol used in the present invention include polyoxyethylene polyoxypropylene alkylene glycol (e.g. polyoxyethylene polyoxypropylene cetyl ether, polyoxyethylene polyoxypropylene lauryl ether, polyoxyethylene

polyoxypropylene decyltetradecyl ether or polyoxyethylene polyoxypropylene butyl ether), polyoxyethylene polypropylene glycol, polyoxyethylene polyoxypropylene random copolymerization type polymer, polyoxyethylene polyoxypropylene glyceryl ether, polyoxypropylene glyceryl ether, polyoxypropylene glyceryl ether phosphoric acid and polyoxyethylene polyoxypropylene ethylenediamine ether, which have an HLB value of 10 or more and are water-soluble. These water-soluble polyalkylene glycols are used alone or in combination.

The silicic anhydride and the water-soluble polyalkylene glycol are used in a specific amount and a specific ratio. The content of the silicic anhydride is from 1 to 15% by weight and a ratio of the silicic anhydride to the water-soluble polyalkylene glycol is from 100:1 to 1:1 (weight ratio). When they are within the above ranges, the resulting cleansing agent maintains good form of a cream even at high temperatures and low temperatures and is also excellent in tactile properties and stability.

In proportion to the amount of the silicic anhydride, a gel strength of a gel of the silicic anhydride and the water-soluble polyalkylene glycol increases. Even if an excess amount of the water-soluble polyalkylene glycol is mixed, an adverse influence is not substantially exerted on the gel strength.

In the present invention, the cream-like skin cleansing agent can contain, in addition to the above components, perfumes, colorants (e.g. dyes and pigments), antiseptics, disinfectants, anti-inflammatory agents, chelating agents, viscosity adjustors, frothing agents, foam stabilizers, humectants, oil-supplying agents, perlescent agents and various chemicals. The cream-like skin cleansing agent of the present invention can be applied to facial cleansing compositions, hair cleansing compositions and body cleansing compositions.

[Examples]

The present invention will now be described in more detail by way of examples.

Example [1]

| (Formulation) | (% by weight) |
|---|---|
| (1) Aqueous N-acyl-L-glutamic acid triethanolamine solution (30%) | 50.0 |
| (2) Monostearic acid polyethylene glycol (55) | 5.0 |
| (3) Coconut oil fatty acid diethanolamide | 5.0 |
| (4) Polyoxyethylene polyoxypropylene random copolymerization type polymer (molecular weight: 500) | 2.5 |
| (5) Propylene glycol | 10.0 |
| (6) Antiseptic | 0.1 |
| (7) Dye | q.s. |
| (8) Perfume | 0.2 |

| | |
|---|---|
| (9) Silicic anhydride | 8.0 |
| (10) Purified water | balance |

(Preparation)

A. The components (1) to (6) and (10) are uniformly mixed and dissolved by heating.

B. After cooling the mixture (A), the components (7) to (9) are added, followed by uniform mixing.

C. The resulting product (B) is degased and then filled into a container.

The cream-like facial cleansing composition thus obtained has beautiful translucent appearance and has a pH of 6.2, and is also excellent in affinity with water and provides refreshing sensation during use. Furthermore, the cream-like cleansing composition is stable for a long time.

Example [2]

| (Formulation) | (% by weight) |
|---|---|
| (1) Monosodium N-lauroyl-L-glutamate | 5.0 |
| (2) Monostearic acid polyethylene glycol (55) | 3.0 |
| (3) Lauric acid diethanolamide | 7.0 |
| (4) Coconut oil fatty acid methyltaurine sodium | 10.0 |
| (5) Monostearic acid ethylene glycol | 0.5 |
| (6) Polyoxyethylene polyoxypropylene cetyl ether (HLB: 12.5) | 1.5 |
| (7) Dipropylene glycol | 7.0 |

| | |
|---|---|
| (8) Propylene glycol | 4.0 |
| (9) Antiseptic | 0.1 |
| (10) Titanium coated mica | 0.1 |
| (11) Perfume | 0.2 |
| (12) Dye | q.s. |
| (13) Silicic anhydride | 7.0 |
| (14) Purified water | balance |

(Preparation)

A. The components (1) to (9) and (14) are uniformly mixed and dissolved by heating.

B. After cooling the mixture (A), the components (10) to (13) are added, followed by uniform mixing.

C. The resulting product (B) is degased and then filled into a container.

The cream-like facial cleansing composition thus obtained has translucent and beautiful perlescent appearance and has a pH of 6.5, and also provides wet sensation during use. Furthermore, the cream-like facial cleansing composition causes less change in viscosity at high temperature and low temperature and is stable for a long time.

Example [3]

| (Formulation) | (% by weight) |
|---|---|
| (1) Potassium laurate | 5.0 |

| | |
|---|---|
| (2) Sodium polyoxyethylene (2) lauryl ether sulfate | 10.0 |
| (3) Polyoxyethylene (5) coconut oil fatty acid monoethanolamide | 1.0 |
| (4) Distearic acid ethylene glycol | 3.0 |
| (5) Polyoxyethylene polyoxypropylene glyceryl ether (HLB: 16) | 2.5 |
| (6) Glycerin | 10.0 |
| (7) Propylene glycol | 5.0 |
| (8) Antiseptic | 0.1 |
| (9) Perfume | 0.2 |
| (10) Dye | q.s. |
| (11) Silicic anhydride | 10.0 |
| (12) Purified water | balance |

(Preparation)

A. The components (1) to (8) and (12) are uniformly mixed and dissolved by heating.

B. After cooling the mixture (A), the components (9) to (11) are added, followed by uniform mixing.

C. The resulting product (B) is degased and then filled into a container.

The cream-like facial cleansing composition thus obtained has beautiful perlescent appearance and has a pH of 9.5, and also lathers well and has good cleansing effect and proper degreasing effect. Furthermore, the cream-like

cleansing composition is stable for a long time.

[Effects of the Invention]

To confirm the stability of the cream-like skin cleansing agent of the present invention, the measurement of the gel strength and the test on stability over time were carried out, with respect to Example [1] and the following Comparative Examples [1] to [3].

Comparative Examples [1] to [3]

(Formulation) (% by weight)

| (% by weight) | Comparative Examples | | |
|---|---|---|---|
| | [1] | [2] | [3] |
| (1) Aqueous N-acyl-L-glutamic acid triethanolamine solution (30%) | 50.0 | 50.0 | 50.0 |
| (2) Monostearic acid polyethylene glycol (55) | 5.0 | 5.0 | 5.0 |
| (3) Coconut oil fatty acid diethanolamide | 5.0 | 5.0 | 5.0 |
| (4) Polyoxyethylene polyoxypropylene random copolymerization type polymer (molecular weight: 500) | 2.5 | 0.05 | - |
| (5) Propylene glycol | 10.0 | 10.0 | 10.0 |
| (6) Antiseptic | 0.1 | 0.1 | 0.1 |
| (7) Dye | q.s. | q.s. | q.s. |
| (8) Perfume | 0.2 | 0.2 | 0.2 |
| (9) Silicic anhydride | 0.5 | 8.0 | 8.0 |
| (10) Purified water | balance | balance | balance |

(Preparation)

A. The components (1) to (6) and (10) are uniformly mixed and dissolved by heating.

B. After cooling the solution (A), the components (7) to (9) are added, followed by uniform mixing.

C. The resulting mixture (B) is degased and then filled into a container.

In Comparative Example [1], the amount of the silicic anhydride was decreased as compared with Example [1]. In Comparative Example [2], the amount of the polyoxyethylene polyoxypropylene random copolymerization type polymer (molecular weight: 500) was decreased as compared with Example [1] and a ratio of the silicic anhydride to the water-soluble polyalkylene glycol is 160:1. In Comparative Example [3], the polyoxyethylene polyoxypropylene random copolymerization type polymer (molecular weight: 500) used in Example [1] was omitted.

The gel strength was measured by determining its stress peak using a rheometer NRM-2002J manufactured by Fudou Kogyo Co., Ltd. After the preparation of samples of Example [1] and the following Comparative Examples [1] to [3], samples were stored at 20°C for one day and then subjected to the test.

In the test on stability with time, samples of Example [1] and the following Comparative Examples [1] to [3] were used. The test was carried out by observing the state of

each sample after the storage for one month under the storage conditions of a temperature of 5°C, 20°C and 40°C.

The results of the measurement of the gel strength and those of the test on stability over time are shown in Table 1.

Table 1

| | | | Example [1] | Comparative Example [1] | Comparative Example [2] | Comparative Example [3] |
|---|---|---|---|---|---|---|
| Gel intensity | Stress peak value | | 110 g | 25 g | 90 g | 83 g |
| | Measuring conditions | | Attachment: No. 5 (in the form of 20 $\phi$ sphere)<br>Penetration rate: 6 cm/min<br>Stroke: 2 cm<br>Sample temperature: 20°C | | | |
| Test on stability with time | Storage temperature | 5°C | stable cream-like form | cream-like form | poor texture | poor texture |
| | | 20°C | stable cream-like form | water was slightly separated, running was exhibited | cream-like form | water was slightly separated |
| | | 40°C | stable cream-like form | separated | water was slightly separated, running was exhibited | water was slightly separated, running was exhibited |

As is apparent from the results shown in Table 1, the cream-like skin cleansing agent of the present invention had good gel strength and was excellent in stability over time.